Marine Ecosystem Event Response and Assessment (MEERA) Project

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Goals

Initiated in late summer, 1997, as the Rapid Biotic Assessment (RBAT) Project, this project was originally funded by the FKNMS and designed to provide an early warning and assessment program for biotic events on reefs throughout Sanctuary waters. In December, 1999, the project was renamed the Marine Ecosystem Event Response and Assessment (MEERA) Project to more accurately portray the overall scope and objectives of the project, which include any event that impacts the marine environment of the FKNMS and surrounding waters.

Methods

The Marine Observer Network continues to be the most important component of the MEERA project, whereby anyone can call, e-mail, fax, or file a report on-line to submit observations to the MEERA Project Coordinator for evaluation. Public outreach efforts have expanded to reach as large and diverse an audience as possible, including the following:

Fishing Guides	FWC/Fish & Wildlife Research Institute	The Nature Conservancy
Charter Captains	Florida Keys National Marine Sanctuary	Seacamp
Dive Operators	Sanctuary Law Enforcement	U.S. Coast Guard
Commercial Fishermen	National Marine Fisheries Service	U.S. Fish and Wildlife Service
Tropical Fish Collectors	The Ocean Conservancy	All Keys Residents

Findings to Date

A total of 143 reports were received in 2002 from sources including a variety of researchers, State and Federal personnel, and residents, as well as fishers and divers (Table 1). Due to multiple observations included in some reports, a total of 310 observations were logged that included mainly reports of algal blooms and discolored water, sea turtle strandings, coral disease and bleaching, and fish disease or fish kills (Table 2). Other reports included various mortality events, invasive species, and various unusual observations.

Response efforts included the collection, analysis, and shipping of samples; photo-documentation of reports or events; and providing assistance or logistical support for other researchers and organizations. Efforts utilized a combination of volunteers, cooperative agency work, and Mote Marine Laboratory staff and equipment. These efforts included the following:

- Coordinated volunteers to collect water samples during algal blooms or periods of significant water discoloration to assist FWC and Mote Marine Laboratory's Harmful Algal Bloom Monitoring projects.
- Responded to turtle-stranding reports to recover specimens and provide relevant data to the Florida Sea Turtle Stranding and Salvage Network (FWC).
- Investigated several local fish kills affecting canals on Cudjoe Key and Big Pine Key to determine cause and provide information to the FWC Aquatic Health Network.
- Provided logistical support and collaborative efforts on a variety of related research projects (Table 3).

Future Plans

As the project continues to log hundreds of observations each year, there is a clear indication that Marine Observer participation continues to play a crucial role in detecting marine events, and that there is a significant need for increasing response efforts in the future. Several goals have been identified as necessary to increase the MEERA Project's effectiveness:

- Find a source of continued funding to continue expanding the Marine Observer Network and initiate comprehensive response efforts that incorporate increased community participation.
- Continue to improve communication with State and Federal agencies, and other researchers to maximize MEERA's involvement and assistance with response efforts.
- Further develop the MEERA website (www.mote.org/Keys/TRL_MEERA.htm) to allow researchers, resource managers, and the public to access recent reports and submit reports on-line.

Acknowledgment

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Table 1. Types of observations.

Observations	
Algal Blooms/Discolored Water	105
Marine Mammal/Turtle Stranding	77
Coral Disease/Bleaching	35
Fish Disease/Fish Kill	27
Mortality Event	25
Other Observations	41
Total	310

Table 2. Sources of reports.

Report Sources	
Researcher	72
Resident	34
Fish/Dive Industry	20
Web	7
Media	6
Others	4
Total	143

Table 3. Related research supported by Mote's Tropical Research Lab in 2002.

Project	Objectives
Cornell Univ.- Sea Fan Studies	Conduct laboratory and field studies investigating sea fan diseases
Univ. of S. Georgia-Coral Research	Assist with coral collections and growth/spawning experiments
EPA-Special Studies	Study effects of reef fish feeding on coral disease distribution
NOAA CCEMBR-White Plague	Collect samples of infected corals for biomarker analysis
Univ. of Houston-Coral Research	Assist coral transplantation and sampling for genetic study
Harmful Algal Bloom Monitoring	Conduct regular water sampling and respond to HAB events
Coral Disease Workshop	Laboratory and field training related to coral disease research
EPA-UV and CDOM Monitoring	Study CDOM sources and sinks and UV penetration over reefs
EPA-Coral Disease Surveys	Monitor coral disease and bleaching in Florida Keys and Bahamas